PATENT CLAIMS

1.   Apparatus (1) for determining and/or monitoring at least one physical or chemical, process variable of a medium and having at least one oscillatable unit (5) which produces, and/or receives, mechanical oscillations,
characterized in that,
at least one tuning unit (20) is provided whose stiffness is variable and which is embodied in such a manner and connected in such a manner with the oscillatable unit (5), or is a component of the oscillatable unit in such a manner, that at least the resonance frequency of the oscillatable unit (5) is changeable via the tuning unit (20).

2.   Apparatus (1) as claimed in claim 1,
characterized in that,
the tuning unit (20) comprises a piezoelectric material, which is connected with electrodes (21) and whose stiffness is changeable at least by an electric current between the electrodes (21).

3.   Apparatus (1) as claimed in claim 1,
characterized in that,
the tuning unit (20) comprises a magnetostrictive material whose stiffness is changeable at least by an applied magnetic field.

4.   Apparatus (1) as claimed in claim 1,
characterized in that,
a control unit (25) is provided which controls the tuning unit (20) electrically.

5.   Apparatus (1) as claimed in claim 4,
characterized in that,
the control unit (25) is embodied in such a manner that it tunes the resonance frequency of the oscillatable unit (5) as a function of the oscillation amplitude

and/or oscillation frequency of the mechanical oscillations produced and/or received by the oscillatable unit (5).

6.   Apparatus (1) as claimed in one or more of the claims 1 to 5,
characterized in that,
at least one inner oscillatory rod (10.1) and an outer oscillatory rod (10.2) are provided in the oscillatable unit (5);
the outer oscillatory rod (10.1) surrounds the inner oscillatory rod (10.1) coaxially;
the outer oscillatory rod (10.2) and the inner oscillatory rod (10.1) are coupled together; and
at least one tuning unit (20) is coupled at least with 1 of the oscillatory rods (10.1, 10.2).

7.   Apparatus as claimed in claim 6,
characterized in that,
the tuning unit (20) is connected at least with the inner oscillatory rod (10.1).

8.   Apparatus (1) as claimed in one or more of the claims 1-5,
characterized in that,
at least one sending/receiving piezo is provided in the oscillatable unit (5);
the tuning unit (20) is a part of the oscillatable unit (5); and
the resonance frequency of the oscillatable unit (5) lies in the ultrasonic range.

9.   Apparatus as claimed in one or more of the claims 1 to 5,
characterized in that,
at least one front-side mass (15.1) and one rear-side mass (15.2) are provided in the oscillatable unit (5);
at least one sending/receiving piezo (16) is provided between the two masses (15.1, 15.2);
at least one tuning unit (20) is part of one of the two masses (15.1, 15.2); and
the resonance frequency of the oscillatable unit (5) lies in the ultrasonic range.

10.   Apparatus (1) as claimed in claim 8 or 9,

characterized in that,

at least one matching layer (17) is provided in the oscillatable unit (5) for

5   coupling to the medium.

11.   Apparatus (1) as claimed in claim 9,

characterized in that,

at least one bolt (18) is provided in the oscillatable unit (5) for producing a

10   prestress.

12.   Apparatus (1) as claimed in one or more of the claims 1 to 5,

characterized in that,

the oscillatable unit (5) includes at least one measuring tube of a measurement

15   pickup of vibration-type inserted into the course of a pipeline, especially a

Coriolis mass flow or a Coriolis mass flow/density meter.

13.   Method for changing the resonance frequency of an apparatus (1) for

determining and/or monitoring at least one physical or chemical, process

20   variable of a medium,

having at least one oscillatable unit (5),

which produces and/or receives mechanical oscillations,

characterized in that,

the stiffness of at least one tuning unit (20), which is connected with the

25   oscillatable unit (5) or is a part of the oscillatable unit (5), is changed.